

# **SANYO SCROLL COMPRESSORS**

*For Air Conditioning  
For Refrigeration*



C-SB Series

C-SC Series

C-SD Series

Dalian SANYO Compressor Co., Ltd.

**SANYO**

## R22

### R22 - B8 (50Hz 380-415V / 60Hz 440-460V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	51.8	C-SB263H8B	809 831 88	—	9.15	31.2	3.10	10.6	11.2	38.2	3.20	10.9	B	
		55.7	C-SB263H8C	809 832 88	—	9.15	31.2	3.10	10.6	11.2	38.2	3.20	10.9	A	
	4	66.8	C-SB303H8A	809 840 88	—	9.60	32.8	3.10	10.6	11.8	40.3	3.19	10.9	B	
		C-SB303H8G	809 846 88	—	11.8	40.3	3.23	11.0	14.4	49.2	3.27	11.2	A		
	4.5	77.4	C-SB353H8A	809 842 88	—	13.5	46.1	3.18	10.9	16.7	57.0	3.28	11.2	A	
		C-SB353H8G	809 847 88	—	13.5	46.1	3.18	10.9	16.7	57.0	3.28	11.2	At		
	5	83.2	C-SB373H8A	809 850 88	—	14.5	49.5	3.19	10.9	17.9	61.1	3.23	11.0	A	
		C-SB373H8G	809 856 88	—	14.5	49.5	3.19	10.9	17.9	61.1	3.23	11.0	At		
	5.5	90.6	C-SBR195H38A	—	—	16.0	54.6	3.20	10.9	19.4	66.2	3.23	11.0	A	
	6	100.0	C-SB453H8A	809 860 88	—	17.7	60.4	3.26	11.1	21.5	73.4	3.24	11.1	A	
			C-SB453H8F	809 865 88	—	17.7	60.4	3.26	11.1	21.5	73.4	3.24	11.1	Jt	
			C-SB453H8G	809 866 88	—	17.7	60.4	3.26	11.1	21.5	73.4	3.24	11.1	At	
	7	110.2	C-SBR235H38A	—	—	19.2	65.6	3.20	10.9	23.2	79.2	3.27	11.2	A	
	8	131.9	C-SC583H8H	809 284 88	—	23.6	80.6	3.30	11.3	28.5	97.3	3.26	11.1	D	
			C-SC583H8K	809 286 88	—	23.6	80.6	3.30	11.3	28.5	97.3	3.26	11.1	Dt	
	9	148.8	C-SC603H8H	809 281 88	—	24.5	83.6	3.31	11.3	29.6	101.1	3.29	11.2	D	
			C-SC603H8K	809 283 88	—	24.5	83.6	3.31	11.3	29.6	101.1	3.29	11.2	Dt	
	10	171.2	C-SC673H8H	809 291 88	—	26.5	90.5	3.29	11.2	32.0	109.3	3.27	11.2	D	
			C-SC673H8K	809 293 88	—	26.5	90.5	3.29	11.2	32.0	109.3	3.27	11.2	Dt	
	12	199.1	C-SC753H8H	809 201 88	—	30.6	104.5	3.38	11.5	36.9	126.0	3.32	11.3	E	
			C-SC753H8K	809 203 88	—	30.6	104.5	3.38	11.5	36.9	126.0	3.32	11.3	Et	
	12	205.4	C-SC863H8H	809 224 88	—	35.2	120.2	3.32	11.3	—	—	—	—	E	
			C-SC903H8H	809 221 88	—	36.1	123.3	3.31	11.3	—	—	—	—	E	
			C-SC903H8K	809 223 88	—	36.1	123.3	3.31	11.3	—	—	—	—	Et	

### R22 - B8 (50Hz 380-415V / 60Hz 440-460V)

### Hi-COP Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	55.7	C-SBX120H38A	—	—	10.0	34.1	3.35	11.4	12.0	41.0	3.38	11.5	Developing	
	4	66.8	C-SBX145H38A	—	—	12.0	41.0	3.40	11.6	14.6	49.8	3.42	11.7	Developing	
	4.2	70.1	C-SBX150H38A	—	—	12.5	42.7	3.40	11.6	15.0	51.2	3.42	11.7	A	
	4.4	73.2	C-SBX160H38A	—	—	13.1	44.7	3.40	11.6	15.8	53.9	3.42	11.7	A	
	4.5	76.0	C-SBX165H38A	809 745 88	—	13.5	46.1	3.33	11.4	16.3	55.7	3.33	11.4	A	
			C-SBX165H38B	809 746 88	—	13.5	46.1	3.33	11.4	16.3	55.7	3.33	11.4	At	
			C-SBX165H38C	—	—	13.6	46.4	3.32	11.3	16.5	56.3	3.33	11.4	A	
			C-SBX165H38D	—	—	13.6	46.4	3.40	11.6	16.5	56.3	3.42	11.7	Developing	
	5	81.0	C-SBX180H38A	809 750 88	—	14.3	48.8	3.33	11.4	17.3	59.1	3.33	11.4	A	
			C-SBX180H38B	809 751 88	—	14.3	48.8	3.33	11.4	17.3	59.1	3.33	11.4	At	
	5.5	83.7	C-SBX180H38C	809 753 88	—	14.7	50.2	3.30	11.3	17.8	60.8	3.30	11.3	A	
			C-SBX180H38D	809 754 88	—	14.7	50.2	3.30	11.3	17.8	60.8	3.30	11.3	At	
	5.5	90.6	C-SBX195H38A	—	—	16.3	55.7	3.33	11.4	19.8	67.6	3.38	11.5	A	
	6	100.0	C-SBX215H38P	—	—	17.7	60.4	3.33	11.4	21.5	73.4	3.33	11.4	A	

### R22 - B8 (50Hz 380-415V / 60Hz 440-460V)

### EVI Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz cooling				50Hz heating				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	55.7	C-SBR120H38Q	—	—	10.0	34.1	3.21	11.0	10.3	35.2	3.33	11.4	Developing	
	4	66.8	C-SBR145H38Q	—	—	11.9	40.6	3.25	11.1	12.0	41.0	3.33	11.4	Developing	
	5	83.2	C-SBR180H38Q	—	—	14.8	50.5	3.33	11.4	14.8	50.5	3.36	11.5	Developing	
	8	137.0	C-SCR295H38Q	—	—	24.5	83.6	3.31	11.3	24.5	83.6	3.36	11.5	Developing	
	10	171.2	C-SCR370H38Q	—	—	30.6	104.5	3.38	11.5	29.6	101.1	3.36	11.5	Developing	
	3.5	55.7	C-SB261H5B	809 831 45	CSR	9.10	31.1	2.94	10.0	—	—	—	—	—	
			C-SBR110H15A	—	PSC	9.10	31.1	2.94	10.0	—	—	—	—	—	
	4	66.8	C-SB261H5A	809 830 45	CSR	9.70	33.1	2.98	10.2	—	—	—	—	—	
			C-SBR120H15A	—	PSC	9.70	33.1	2.98	10.2	—	—	—	—	—	
	4	66.8	C-SB301H5A	809 840 45	CSR	11.7	39.9	3.12	10.7	—	—	—	—	—	

### R22 - B5 (50Hz 220-240V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
3	3.5	55.7	C-SB261H5B	809 831 45	CSR	9.10	31.1	2.94	10.0	A	
			C-SBR110H15A	—	PSC	9.10	31.1	2.94	10.0	A	
	4	66.8	C-SB261H5A	809 830 45	CSR	9.70	33.1	2.98	10.2	A	
			C-SBR120H15A	—	PSC	9.70	33.1</				

1	4.5	77.4	C-SBR145H15A	—	PSC	12.7	43.4	3.12	10.7	A
			C-SB351H5A	809 842 45	PSC	13.7	46.8	3.08	10.5	A
			C-SBR165H15A	—	PSC	13.7	46.8	3.08	10.5	A
			C-SB371H5A	809 850 45	PSC	14.7	50.2	3.16	10.8	A
3	5	83.2	C-SBR180H15A	—	PSC	14.7	50.2	3.16	10.8	Developing
	5.8	93.1	C-SBR200H15H	—	PSC	16.4	56.0	3.12	10.7	J
	4	66.8	C-SB303H5A	809 840 85	—	11.7	39.9	3.16	10.8	A
	5	83.2	C-SB373H5A	809 850 85	—	14.7	50.2	3.16	10.8	A
	6	100.0	C-SB453H5A	809 860 85	—	17.8	60.8	3.24	11.1	A
	8	137.0	C-SC603H5H	809 281 85	—	24.2	82.6	3.29	11.2	D
10	171.2	C-SC753H5H	809 201 85	—	30.6	104.5	3.36	11.5	E	
	12	205.4	C-SC903H5H	809 221 85	—	36.0	122.9	3.30	11.3	F

### R22 - B5 (50Hz 220-240V)

### Hi-COP Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
1	4	66.8	C-SBX145H15A	—	PSC	12.0	41.0	3.30	11.3	Developing	
	5	83.2	C-SBX180H15A	—	PSC	14.7	50.2	3.25	11.1	Developing	

### R22 - B5 (50Hz 220-240V)

### T3 Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
1	3.5	55.7	C-SBR120H15P	—	PSC	9.70	33.1	2.98	10.2	A	
	4	66.8	C-SBR145H15P	—	PSC	11.8	40.3	3.19	10.9	A	
	4.5	77.4	C-SBR165H15P	—	PSC	13.7	46.8	3.08	10.5	Developing	

### R22 - B6 (60Hz 208-230V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
1	3.5	51.8	C-SB261H6C	809 832 46	CSR	11.2	38.2	3.11	10.6	A	
			C-SBR110H16A	—	PSC	11.2	38.2	3.11	10.6	A	
	4	66.8	C-SB261H6A	809 830 46	CSR	12.1	41.3	3.23	11.0	A	
			C-SBR120H16A	—	PSC	12.1	41.3	3.23	11.0	A	
	4.5	77.4	C-SB261H6D	809 833 46	PSC	12.1	41.3	3.23	11.0	A倒三	
			C-SB301H6B	809 841 46	CSR	14.5	49.5	3.26	11.1	A	
	5	83.2	C-SBR145H16A	—	PSC	14.5	49.5	3.26	11.1	A	
			C-SB351H6A	809 842 46	CSR	16.8	57.4	3.20	10.9	As	
	6	100.0	C-SB165H16A	—	PSC	16.8	57.4	3.20	10.9	As	
			C-SB301H6C	809 844 46	PSC	16.8	57.4	3.20	10.9	A倒三	
3	3.5	51.8	C-SB263H6C	809 832 86	—	11.1	37.9	3.13	10.7	A	
			C-SB263H6B	809 831 86	—	11.9	40.6	3.22	11.0	A	
	4	66.8	C-SB303H6A	809 840 86	—	14.4	49.2	3.27	11.2	As	
			C-SB303H6B	809 841 86	—	14.4	49.2	3.27	11.2	A	
	4.5	77.4	C-SB303H6G	809 846 86	—	14.4	49.2	3.27	11.2	At	
			C-SB353H6B	809 843 86	—	16.8	57.4	3.29	11.2	A	
	5	83.2	C-SB353H6C	809 844 86	—	16.8	57.4	3.29	11.2	A	
			C-SB373H6A	809 850 86	—	18.1	61.8	3.32	11.3	As	
	6	100.0	C-SB373H6B	809 851 86	—	18.1	61.8	3.32	11.3	A	
			C-SB373H6G	809 856 86	—	18.1	61.8	3.32	11.3	At	
	7	110.2	C-SB453H6A	809 860 86	—	21.3	72.7	3.25	11.1	As	
			C-SB453H6B	809 861 86	—	21.3	72.7	3.25	11.1	A	
	8	131.9	C-SB453H6G	809 866 86	—	21.3	72.7	3.25	11.1	At	
			C-SB235H36A	—	—	23.3	79.6	3.28	11.2	Developing	
9	8	137.0	C-SC583H6H	809 284 86	—	27.9	95.3	3.19	10.9	D	
			C-SC603H6H	809 281 86	—	29.6	101.1	3.31	11.3	D	
	9	148.8	C-SC603H6K	809 283 86	—	29.6	101.1	3.31	11.3	Dt	
			C-SC673H6H	809 291 86	—	32.3	110.3	3.38	11.5	E	
	10	171.2	C-SC753H6H	809 201 86	—	37.0	126.3	3.36	11.5	E	
			C-SC753H6K	809 203 86	—	37.0	126.3	3.36	11.5	Et	
	12	205.4	C-SC903H6H	809 221 86	—	43.2	147.5	3.15	10.8	Developing	

### R22 - B6 (60Hz 208-230V)

### T3 Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
1	3.5	55.7	C-SBR120H16P	—	CSR	11.9	40.6	3.09	10.5	A	
	4	66.8	C-SBR145H16P	—	CSR	14.4	49.2	3.20	10.9	A	
	4.5	77.4	C-SBR165H16P	—	CSR	16.8	57.4	3.20	10.9	As	
	5	83.2	C-SBR180H16N	—	CSR	18.1	61.8	3.12	10.7	—	

**R22 - B6 (60Hz 208-230V)**
**SPA Models (condensing temp max60°C)**

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code
						Nominal Capacity		COP		
	HP	cm <sup>3</sup> /rev				kW	kBTU/h	W/W	BTU/Wh	
1	5	51.8	C-SBR180H16Y	—	PSC	17.9	61.1	3.03	10.3	J
	5.8	66.8	C-SBR200H16Y	—	PSC	19.9	67.9	3.06	10.4	J
	6	77.4	C-SBR215H16Y	—	PSC	21.5	73.4	3.05	10.4	J
	7	83.2	C-SBR235H16Y	—	PSC	23.4	79.9	3.10	10.6	J

**R22 - B9 (60Hz 380V)**

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code
						Nominal Capacity		COP		
	HP	cm <sup>3</sup> /rev				kW	kBTU/h	W/W	BTU/Wh	
3	3.5	51.8	C-SB263H9B	809 831 89	—	10.9	37.2	3.03	10.3	B
		C-SB263H9C	809 832 89	—	—	10.9	37.2	3.03	10.3	A
	4	55.7	C-SB263H9A	809 830 89	—	11.8	40.3	2.98	10.2	A
		C-SB303H9A	809 840 89	—	—	14.2	48.5	3.23	11.0	A
	4.5	66.8	C-SB303H9G	809 846 89	—	14.2	48.5	3.23	11.0	At
		C-SB353H9A	809 842 89	—	—	16.6	56.7	3.25	11.1	A
	5	83.2	C-SB373H9A	809 850 89	—	17.8	60.8	3.24	11.1	A
			C-SB373H9G	809 856 89	—	17.8	60.8	3.24	11.1	At
	6	100.0	C-SB453H9A	809 860 89	—	21.2	72.4	3.24	11.1	A
			C-SB453H9G	809 866 89	—	21.2	72.4	3.24	11.1	At
	8	137.0	C-SC603H9H	809 281 89	—	29.6	101.1	3.29	11.2	D
			C-SC603H9K	809 283 89	—	29.6	101.1	3.29	11.2	Dt
	10	171.2	C-SC753H9H	809 201 89	—	37.3	127.3	3.36	11.5	E
			C-SC753H9K	809 203 89	—	37.3	127.3	3.36	11.5	Et
	12	205.4	C-SC903H9H	809 221 89	—	44.4	151.6	3.31	11.3	Developing

**R22 - Inverter Drive Models (AC)**

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	90Hz				Outline Graph Code
						Nominal Capacity		COP		
	HP	cm <sup>3</sup> /rev				kW	kBTU/h	W/W	BTU/Wh	
3	5	55.7	C-SBV180H00A	—	AC Inv	18.0	61.5	3.00	10.2	J
		55.7	C-SBV180H00B	—	AC Inv	18.0	61.5	3.00	10.2	Jt

## R407C

### R407C - B8 (50Hz 380-415V / 60Hz 440-460V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	55.7	C-SBN263H8A	809 930 88	—	9.60	32.8	2.87	9.8	11.8	40.3	2.87	9.8	B	
	4	66.8	C-SBN303H8A	809 940 88	—	11.6	39.6	3.05	10.4	14.6	49.8	3.17	10.8	A	
			C-SBN303H8G	809 946 88	—	11.6	39.6	3.05	10.4	14.6	49.8	3.17	10.8	At	
	4.5	77.4	C-SBN353H8A	809 942 88	—	13.4	45.8	2.91	9.9	16.5	56.3	2.95	10.1	A	
	5	83.2	C-SBN373H8A	809 950 88	—	14.5	49.5	2.93	10.0	17.8	60.8	2.99	10.2	A	
			C-SBN373H8G	809 956 88	—	14.5	49.5	2.93	10.0	17.8	60.8	2.99	10.2	At	
	6	100.0	C-SBN453H8A	809 960 88	—	17.6	60.1	3.03	10.3	21.3	72.7	3.04	10.4	A	
			C-SBN453H8G	809 966 88	—	17.6	60.1	3.03	10.3	21.3	72.7	3.04	10.4	At	
	7	110.2	C-SBS235H38A	—	—	19.5	66.6	3.10	10.6	23.4	79.9	3.10	10.6	A	
			C-SBS235H38B	—	—	19.5	66.6	3.10	10.6	23.4	79.9	3.10	10.6	At	
		131.9	C-SCN583H8H	809 184 88	—	23.6	80.6	3.13	10.7	28.0	95.6	3.03	10.3	D	
		137.0	C-SCN603H8H	809 181 88	—	24.5	83.6	3.16	10.8	29.1	99.4	3.08	10.5	D	
			C-SCN603H8K	809 183 88	—	24.5	83.6	3.16	10.8	29.1	99.4	3.08	10.5	Dt	
	10	171.2	C-SCN753H8H	809 101 88	—	29.9	102.1	3.20	10.9	35.9	122.6	3.12	10.7	E	
		171.2	C-SCN753H8K	809 103 88	—	29.9	102.1	3.20	10.9	35.9	122.6	3.12	10.7	Et	
	12	205.4	C-SCN903H8H	809 121 88	—	34.9	119.2	3.09	10.5	—	—	—	—	E	
		205.4	C-SCN903H8K	809 123 88	—	34.9	119.2	3.09	10.5	—	—	—	—	Et	

### R407C - B8 (50Hz 380-415V / 60Hz 440-460V)

T3 Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	4.5	77.4	C-SBS165H38P	—	—	13.4	45.8	2.91	9.9	16.5	56.3	2.95	10.1	A	
	6	83.2	C-SBS215H38P	—	—	17.6	60.1	3.03	10.3	21.3	72.7	3.04	10.4	A	

### R407C - B8 (50Hz 380-415V / 60Hz 440-460V)

EVI Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz cooling				50Hz heating				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	55.7	C-SBS120H38Q	—	—	10.1	34.5	3.00	10.2	10.5	35.8	3.18	10.9	Developing	
	4	66.8	C-SBS145H38Q	—	—	12.1	41.3	3.10	10.6	12.2	41.7	3.20	10.9	Developing	
	5	83.2	C-SBS180H38Q	—	—	15.3	52.2	3.14	10.7	15.0	51.2	3.20	10.9	Developing	
	8	137.0	C-SCS295H38Q	—	—	24.5	83.6	3.16	10.8	24.6	84.0	3.22	11.0	Developing	
	10	171.2	C-SCS370H38Q	—	—	29.9	102.1	3.20	10.9	30.7	104.8	3.25	11.1	Developing	

### R407C - B5 (50Hz 220-240V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
1	3.5	55.7	C-SBN261H5A	809 930 45	CSR	9.70	33.1	2.85	9.7	A	
			C-SBS120H15A	—	PSC	9.70	33.1	2.85	9.7	A	
	4	66.8	C-SBN301H5A	809 940 45	CSR	11.8	40.3	2.95	10.1	A	
			C-SBS145H15A	—	PSC	11.8	40.3	2.95	10.1	A	
	4.5	77.4	C-SBN351H5A	809 942 45	PSC	13.5	46.1	2.84	9.7	A	
			C-SBS165H15A	—	PSC	13.5	46.1	2.84	9.7	A	
	5	83.2	C-SBN371H5A	809 950 45	PSC	14.5	49.5	2.91	9.9	A	
			C-SBS180H15A	—	PSC	14.5	49.5	2.91	9.9	Developing	
	3.5	55.7	C-SBN263H5A	809 930 85	—	9.85	33.6	2.94	10.0	A	
3	4	66.8	C-SBN303H5A	809 940 85	—	11.5	39.3	2.99	10.2	A	
	5	83.2	C-SBN373H5A	809 950 85	—	14.7	50.2	2.91	9.9	A	
	6	100.0	C-SBN453H5A	809 960 85	—	17.7	60.4	3.00	10.2	A	
	8	131.9	C-SCN583H5H	809 184 85	—	23.7	80.9	3.14	10.7	D	
		137.0	C-SCN603H5H	809 181 85	—	24.2	82.6	3.14	10.7	D	
	10	171.2	C-SCN753H5H	809 101 85	—	29.9	102.1	3.18	10.9	E	
	12	205.4	C-SCN903H5H	809 121 85	—	34.8	118.8	3.08	10.5	E	

### R407C - B9 (60Hz 380V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
3	5	83.2	C-SBN373H9A	809 950 89	—	18.0	61.5	3.05	10.4	A	

# R410A

## R410A - B8 (50Hz 380-415V / 60Hz 440-460V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3	35.0	C-SBN233H8E	809 934 88	—	8.60	29.4	—	—	—	—	—	—	A	
	3.5	37.5	C-SBN263H8D	809 933 88	—	8.85	30.2	2.49	8.5	11.6	39.6	2.76	9.4	A	
	4	39.9	C-SBN303H8D	809 943 88	—	9.80	33.5	2.68	9.2	12.2	41.7	2.87	9.8	A	
			C-SBN303H8F	809 945 88	—	9.80	33.5	2.68	9.2	12.2	41.7	2.87	9.8	Jt	
			C-SBN303H8H	809 947 88	—	9.80	33.5	2.68	9.2	12.2	41.7	2.87	9.8	At	
	4.5	51.8	C-SBN353H8D	809 948 88	—	13.0	44.4	2.80	9.6	16.2	55.3	2.97	10.1	A	
			C-SBN353H8H	809 949 88	—	13.0	44.4	2.80	9.6	16.2	55.3	2.97	10.1	At	
	5	55.7	C-SBN373H8D	809 953 88	—	14.1	48.1	2.97	10.1	17.1	58.4	3.05	10.4	A	
			C-SBN373H8F	809 955 88	—	14.1	48.1	2.97	10.1	17.1	58.4	3.05	10.4	Jt	
			C-SBN373H8H	809 957 88	—	14.1	48.1	2.97	10.1	17.1	58.4	3.05	10.4	At	
	6	66.8	C-SBN453H8D	809 963 88	—	16.4	56.0	2.85	9.7	20.3	69.3	3.01	10.3	A	
			C-SBN453H8F	809 965 88	—	16.4	56.0	2.85	9.7	20.3	69.3	3.01	10.3	Jt	
			C-SBN453H8H	809 967 88	—	16.4	56.0	2.85	9.7	20.3	69.3	3.01	10.3	At	
	7	77.4	C-SBN523H8D	809 973 88	—	19.2	65.6	2.84	9.7	—	—	—	—	A	
			C-SBN523H8F	809 975 88	—	19.2	65.6	2.84	9.7	—	—	—	—	Jt	
			C-SBN523H8H	809 977 88	—	19.2	65.6	2.84	9.7	—	—	—	—	At	

## R410A - B8 (50Hz 380-415V / 60Hz 440-460V)

### Hi-COP Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	39.6	C-SBP120H38A	—	—	10.0	34.1	2.86	9.8	12.2	41.7	2.94	10.0	A	
	C-SBP120H38B	—	—	10.0	34.1	2.86	9.8	12.2	41.7	2.94	10.0	At			
	3.7	42.4	C-SBP130H38A	—	—	10.9	37.2	2.91	9.9	13.3	45.4	3.02	10.3	A	
			C-SBP130H38B	—	—	10.9	37.2	2.91	9.9	13.3	45.4	3.02	10.3	At	
	4	46.4	C-SBP140H38A	—	—	11.7	39.9	2.93	10.0	14.3	48.8	3.01	10.3	A	
			C-SBP140H38B	—	—	11.7	39.9	2.93	10.0	14.3	48.8	3.01	10.3	At	
	4.6	51.8	C-SBP160H38A	—	—	13.2	45.1	2.87	9.8	16.2	55.3	2.98	10.2	A	
			C-SBP160H38B	—	—	13.2	45.1	2.87	9.8	16.2	55.3	2.98	10.2	At	
	5	55.7	C-SBP170H38A	—	—	14.2	48.5	2.99	10.2	17.3	59.1	3.04	10.4	A	
			C-SBP170H38B	—	—	14.2	48.5	2.99	10.2	17.3	59.1	3.04	10.4	At	
	6	66.8	C-SBP205H38A	—	—	16.8	57.4	3.00	10.2	20.6	70.3	3.10	10.6	A	
			C-SBP205H38B	—	—	16.8	57.4	3.00	10.2	20.6	70.3	3.10	10.6	At	
	8	89.2	C-SCP270H38A	—	—	22.4	76.5	3.03	10.3	27.2	92.9	3.06	10.4	D	
	C-SCP270H38B	—	—	22.4	76.5	3.03	10.3	27.2	92.9	3.06	10.4	Dt			
	10	104.1	C-SCP315H38A	—	—	26.0	88.8	3.02	10.3	31.4	107.2	3.02	10.3	E	
			C-SCP315H38B	—	—	26.0	88.8	3.02	10.3	31.4	107.2	3.02	10.3	Et	
	11	120.2	C-SCP360H38A	—	—	29.8	101.7	3.01	10.3	35.9	122.6	3.02	10.3	E	
			C-SCP360H38B	—	—	29.8	101.7	3.01	10.3	35.9	122.6	3.02	10.3	Et	
	12	131.9	C-SCP360H38A	—	—	32.8	112.0	3.01	10.3	—	—	—	—	E	
			C-SCP360H38B	—	—	32.8	112.0	3.01	10.3	—	—	—	—	Et	
	15	171.2	C-SCP510H38A	—	—	42.2	144.1	3.15	10.8	—	—	—	—	Developing	

## R410A - B5 (50Hz 220-240V)

### Hi-COP Models

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
1	3	35.0	C-SBN231H5E	809 934 45	PSC	8.60	29.4	2.42	8.3	A	
	3.5	37.5	C-SBN261H5D	809 933 45	PSC	9.35	31.9	2.46	8.4	A	
	4	39.9	C-SBN301H5D	809 943 45	PSC	9.70	33.1	2.49	8.5	A	
			C-SBP120H15A	—	PSC	9.80	33.5	2.80	9.6	Developing	
			C-SBP120H15B	—	PSC	9.80	33.5	2.80	9.6	Developing	
	4	46.4	C-SBP140H15A	—	PSC	11.60	39.6	2.85	9.7	Developing	
			C-SBP140H15B	—	PSC	11.60	39.6	2.85	9.7	Developing	
	4.6	51.8	C-SBP160H15A	—	PSC	13.00	44.4	2.80	9.6	A	
			C-SBP160H15B	—	PSC	13.00	44.4	2.80	9.6	At	

**R410A - B6 (60Hz 208-230V)**
**Hi-COP Models**

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code
						Nominal Capacity		COP		
	HP	cm³/rev				kW	kBTU/h	W/W	BTU/Wh	
1	3.5	39.9	C-SBP120H16A	—	PSC	12.0	41.0	2.85	9.7	Developing
	3.7	42.4	C-SBP130H16A	—	PSC	13.0	44.4	2.90	9.9	Developing
	4	46.4	C-SBP140H16A	—	PSC	14.2	48.5	2.90	9.9	Developing
	4.3	48.9	C-SBP150H16A	—	PSC	14.8	50.5	3.00	10.2	Developing
	4.6	51.8	C-SBP160H16A	—	PSC	15.8	53.9	3.00	10.2	Developing
3	3.5	39.9	C-SBP120H36A	—	—	12.2	41.7	2.80	9.6	A
			C-SBP120H36B	—	—	12.2	41.7	2.80	9.6	At
	4.6	51.8	C-SBP160H36A	—	—	16.1	55.0	2.93	10.0	A
			C-SBP160H36B	—	—	16.1	55.0	2.93	10.0	At
	5	55.7	C-SBP170H36A	—	—	17.4	59.4	3.05	10.4	A
			C-SBP170H36B	—	—	17.4	59.4	3.05	10.4	At

**R410A - B6 (60Hz 208-230V)**
**SPA Models (condensing temp.max60°C)**

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code
						Nominal Capacity		COP		
	HP	cm³/rev				kW	kBTU/h	W/W	BTU/Wh	
1	5	55.7	C-SBP170H16Y	—	PSC	16.9	57.7	2.83	9.7	Developing
	6	66.8	C-SBP205H16Y	—	PSC	20.3	69.3	2.85	9.7	Developing
	7	77.4	C-SBP230H16Y	—	PSC	23.3	79.6	2.85	9.7	Developing

**R410A - B9 (60Hz 380V)**

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code
						Nominal Capacity		COP		
	HP	cm³/rev				kW	kBTU/h	W/W	BTU/Wh	
3	3.5	39.9	C-SBP120H39B	—	—	11.8	40.3	2.80	9.6	Jt
	5	55.7	C-SBN373H9F	809 955 89	—	16.9	57.7	2.96	10.1	Jt
	6	66.8	C-SBP205H39B	—	—	19.9	67.9	3.00	10.2	Jt

## R410A - D Series

### R410A - B8 (50Hz 380-415V / 60Hz 440-460V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code	
						Nominal Capacity		COP		Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh	kW	kBTU/h	W/W	BTU/Wh		
3	3.5	38.0	C-SDP120H38A	—	—	10050	34,300	2.90	9.9	12000	41000	2.95	10.1	Developing	
		38.0	C-SDP120H38B	—	—	10050	34,300	2.90	9.9	12000	41000	2.95	10.1	Developing	
	4	42.3	C-SDP135H38A	—	—	11200	38,200	2.90	9.9	13500	46100	2.95	10.1	Developing	
		42.3	C-SDP135H38B	—	—	11200	38,200	2.90	9.9	13500	46100	2.95	10.1	Developing	
	5	55.7	C-SDP170H38A	—	—	14100	48,100	3.00	10.2	16800	57400	3.05	10.4	Developing	
		55.7	C-SDP170H38B	—	—	14100	48,100	3.00	10.2	16800	57400	3.05	10.4	Developing	
	6	66.8	C-SDP205H38A	—	—	16900	57,700	3.05	10.4	20200	69000	3.05	10.4		
		66.8	C-SDP205H38B	—	—	16900	57,700	3.05	10.4	20200	69000	3.05	10.4		
	7	72.0	C-SDP225H38A	—	—	19000	64,900	3.05	10.4	22700	77500	3.05	10.4		
		73.0	C-SDP225H38B	—	—	19000	64,900	3.05	10.4	22700	77500	3.05	10.4		

### R410A - Inverter Drive Models (DC)

Phase	Out Put	Displacement	Compressor Model	Input Power Source	Starting Method	90Hz				Outline Graph Code	
						Nominal Capacity		COP			
						kW	kBTU/h	W/W	BTU/Wh		
—	5.5	38.0	C-SDP190H03A	200-240V	DC Inv	18,600	63,500	3.20	10.9	Developing	
	6	42.3	C-SDP205H03A			21,150	72,200	3.20	10.9	Developing	
—	5.5	38.0	C-SDP190H02B	380-415V		18,600	63,500	3.20	10.9	Developing	
	6	42.3	C-SDP205H02B			21,150	72,200	3.25	11.1		

## for Refrigeration

### R22 for Refrigeration - B3 (50Hz 200V / 60Hz 200-220V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code
						Nominal Capacity		Input	Current	Nominal Capacity		Input	Current	
						kW	kBTU/h	kW	A	kW	kBTU/h	kW	A	
3	5	89.2	C-SC373L3G	809 250 63	—	6.80	23.2	4.70	16.3	8.05	27.5	5.50	17.5	
	6	104.0	C-SC453L3G	809 260 63	—	7.95	27.1	5.20	18.0	9.35	31.9	6.10	19.3	
	7	120.0	C-SC523L3G	809 270 63	—	9.30	31.8	6.05	21.6	10.95	37.4	7.00	22.2	
	8	137.0	C-SC603L3G	809 280 63	—	10.40	35.5	7.00	23.5	12.30	42.0	8.25	26.0	
	10	171.2	C-SC753L3G	809 200 63	—	13.20	45.1	8.45	28.0	15.60	53.3	10.00	31.0	

### R22 for Refrigeration - B8 (50Hz 380-415V / 60Hz 440-460V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code
						Nominal Capacity		Input	Current	Nominal Capacity		Input	Current	
						kW	kBTU/h	kW	A	kW	kBTU/h	kW	A	
3	4	66.8	C-SB303L8A	809 840 68	—	5.30	18.1	3.40	5.8	6.40	21.9	4.05	5.9	Developing
	5	83.2	C-SB373L8A	809 850 68	—	6.80	23.2	4.10	7.0	8.20	28.0	4.80	7.0	Developing
	6	104.0	C-SC453L8H	809 261 68	—	7.95	27.1	5.14	9.1	9.47	32.3	5.98	8.9	
	7	120.0	C-SC523L8H	809 271 68	—	9.30	31.8	5.98	11.0	11.09	37.9	6.86	10.2	
	8	137.0	C-SC603L8H	809 281 68	—	10.40	35.5	6.92	11.9	12.46	42.5	8.09	12.0	
	10	171.2	C-SC753L8H	809 201 68	—	13.20	45.1	8.35	14.2	15.80	53.9	9.80	14.3	

### R22 for Refrigeration - B9 (60Hz 380V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code	
						Nominal Capacity		Input	Current		
						kW	kBTU/h	kW	A		
3	6	104.0	C-SC453L9H	809 261 69	—	9.45	32.3	6.00	11.3	Developing	
	7	120.0	C-SC523L9H	809 271 69	—	11.00	37.6	6.75	12.3	Developing	
	8	137.0	C-SC603L9H	809 281 69	—	12.00	41.0	7.80	13.7		
	10	171.2	C-SC753L9H	809 201 69	—	15.90	54.3	9.50	16.7		

### R22 for Refrigeration - Inverter Drive Models (AC)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz (161V)				70Hz (190V)				Outline Graph Code
						Nominal Capacity		Input	Current	Nominal Capacity		Input	Current	
						kW	kBTU/h	kW	A	kW	kBTU/h	kW	A	
3	8	144.1	C-SCV603L0H	809 281 60	—	13.40	45.8	7.40	29.2	18.60	63.5	10.60	35.2	

### R404A for Refrigeration - B3 (50Hz 200V / 60Hz 200-220V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code
						Nominal Capacity		Input	Current	Nominal Capacity		Input	Current	
						kW	kBTU/h	kW	A	kW	kBTU/h	kW	A	
3	5	89.2	C-SCN373L3H	809 151 63	—	6.95	23.7	5.10	19.2	8.20	28.0	5.90	19.3	
	6	104.0	C-SCN453L3H	809 161 63	—	8.10	27.7	5.85	21.6	9.55	32.6	6.80	21.9	
	7	120.0	C-SCN523L3H	809 171 63	—	9.25	31.6	6.50	23.6	10.90	37.2	7.55	24.2	
	8	137.0	C-SCN603L3H	809 181 63	—	10.50	35.8	7.45	27.0	12.40	42.3	8.85	28.3	
	10	171.2	C-SCN753L3H	809 101 63	—	13.05	44.6	9.15	32.5	15.20	51.9	10.75	34.4	
	12.5	214.8	C-SCN953L3H	809 121 63	—									Developing

### R404A for Refrigeration - B8 (50Hz 380-415V / 60Hz 440-460V)

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	50Hz				60Hz				Outline Graph Code
						Nominal Capacity		Input	Current	Nominal Capacity		Input	Current	
						kW	kBTU/h	kW	A	kW	kBTU/h	kW	A	
3	4	66.8	C-SBN303L8A	809 940 68	—	5.30	18.1	3.75	6.58	6.30	21.5	4.45	7.10	Developing
	5	83.2	C-SBN373L8A	809 950 68	—	6.80	23.2	4.50	7.93	8.10	27.7	5.30	8.41	Developing
	6	104.0	C-SCN453L8H	809 161 68	—	8.10	27.7	5.85	10.8	9.55	32.6	6.80	11.0	
	7	120.0	C-SCN523L8H	809 171 68	—	9.25	31.6	6.50	11.8	10.90	37.2	7.55	12.1	
	8	137.0	C-SCN603L8H	809 181 68	—	10.50	35.8	7.45	13.5	12.40	42.3	8.85	14.2	
	10	171.2	C-SCN753L8H	809 101 68	—	13.05	44.6	9.15	16.3	15.20	51.9	10.75	17.2	

*R404A for Refrigeration - B9 (60Hz 380V)*

Phase	Out Put	Displacement	Compressor Model	Compressor Code	Starting Method	60Hz				Outline Graph Code
						Nominal Capacity		Input	Current	
	HP	cm³/rev				kW	kBTU/h	kW	A	
3	6	104.0	C-SCN453L9H	809 161 69	—	10.20	34.8	6.70	12.3	Developing
	7	120.0	C-SCN523L9H	809 171 69	—	11.70	39.9	7.50	13.4	Developing
	8	137.0	C-SCN603L9H	809 181 69	—	13.10	44.7	8.80	15.4	
	10	171.2	C-SCN753L9H	809 101 69	—	16.50	56.3	10.60	18.5	

*R404A for Refrigeration - Inverter Drive Models (AC)*

## ■ Rating Condition

	R22 / R407C / R410A	
	°C	°F
Condensing Temperature	54.4	130
Evaporating Temperature	7.2	45
Sub Cooling	8.3	15
Super Heating	11.1	20

## ■ Rating Condition for EVI

	Cooling		Heating	
	°C	°F	°C	°F
Condensing Temperature	54.4	130	50	122
Evaporating Temperature	7.2	45	-7	19.4
Sub Cooling	8.3	15	2	3.6
Super Heating	11.1	20	11.1	20

## ■ Rating Condition for Refrigeration ( R22 / R404A )

	fixed speed		Inverter	
	°C	°F	°C	°F
Condensing Temperature	50	122	50	122
Evaporating Temperature	-15	5	-10	14
Sub Cooling	0	0	0	0
Suntion Gas Temperature	18.3	65	18.3	65

## ■ Power Source

Code	Phase	50Hz	60Hz
B3	3 Phase	200V	200-220V
B5	1 Phase	220-240V	-
	3 Phase	220-240V	-
B6	1 Phase	-	208-230V
	3 Phase	-	208-230V
B8	3 Phase	380-415V	440(-460)V
B9	3 Phase		380V

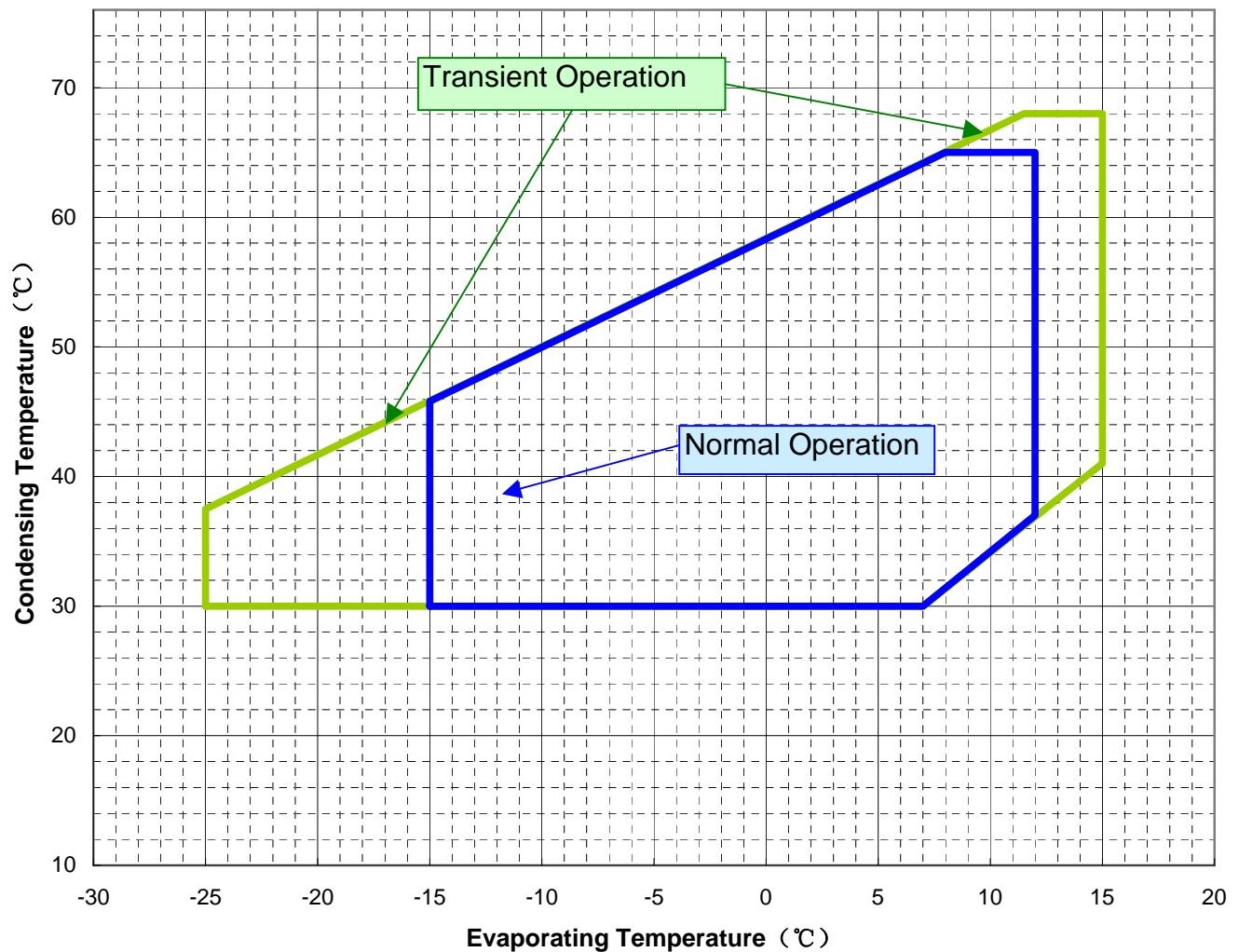
## ■ Subscripts of Outline Graph Code

Subscript	explanation
t	The connection port of oil balance tube is attached
s	Screw type power supply connection

## Operating Envelope

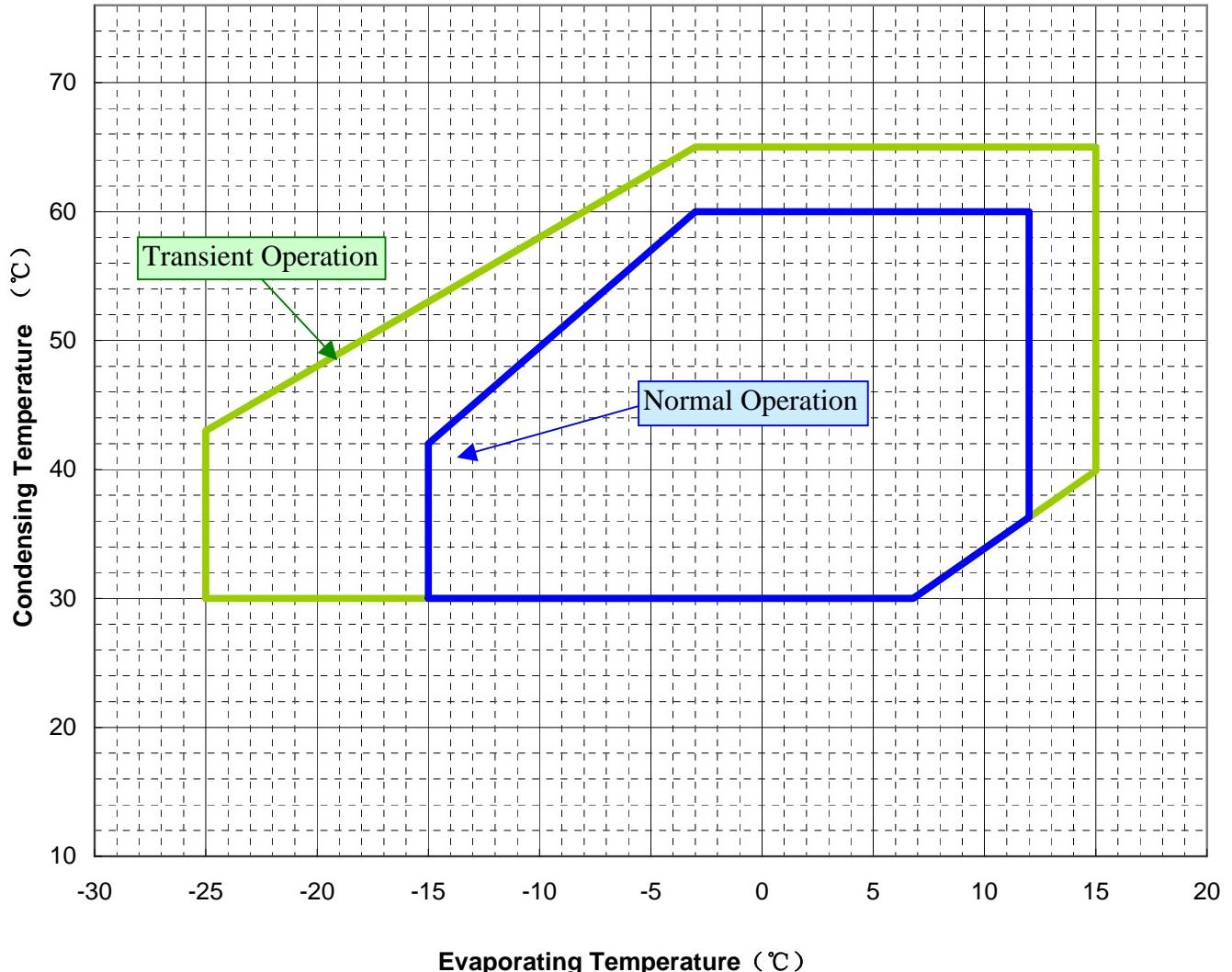
Suction Gas Superheat: 11.1K

Refrigerant: R22



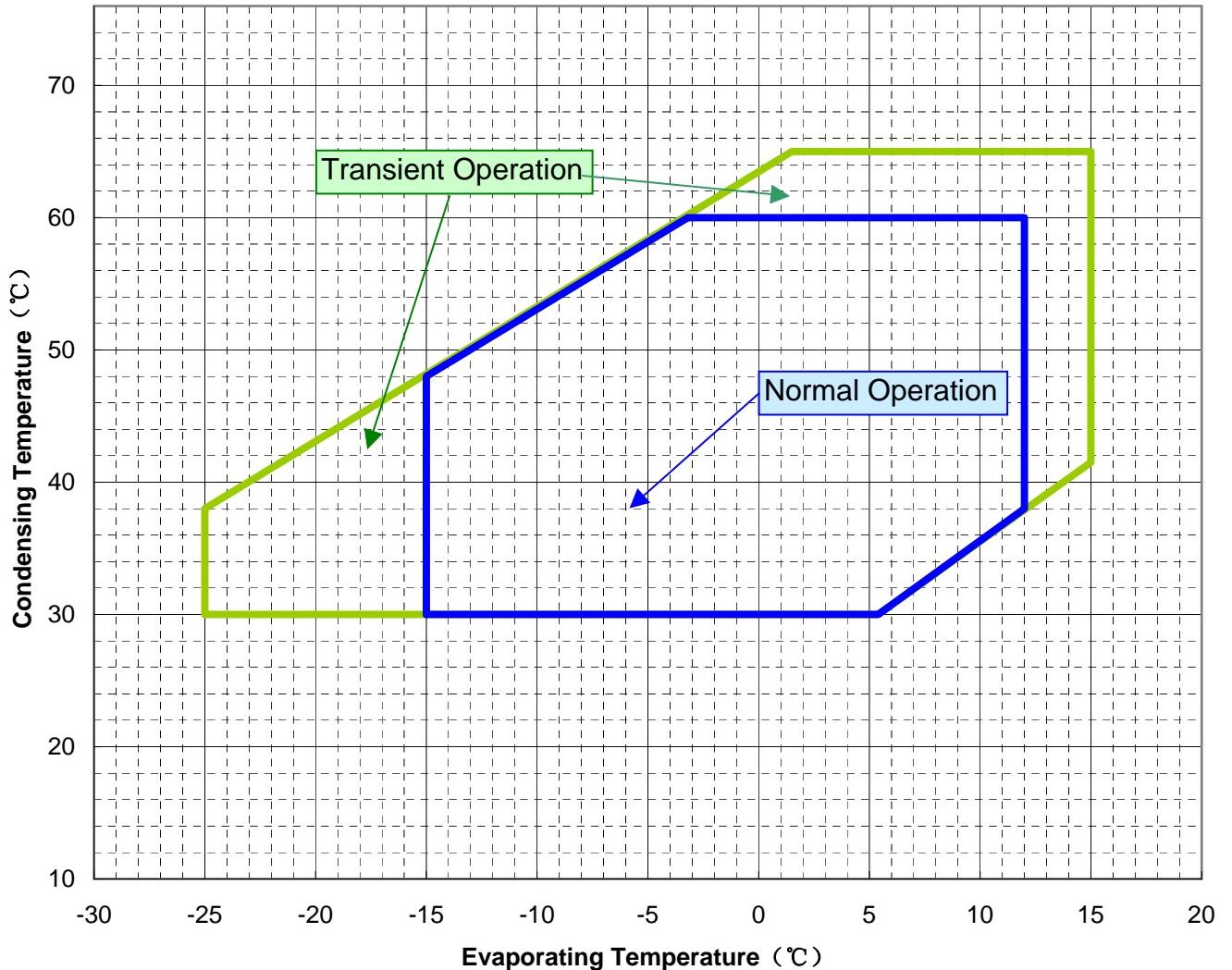
## Operating Envelope

Suction Gas Superheat :9K  
Refrigerant : R407C



## Operating Envelope

Suction Gas Superheat : 11.1K.  
Refrigerant : R410A.



## APPLICATION STANDARD & LIMIT (R22)

The following requirements apply to Vertical type Hermetic Scroll Compressors:

**Standard:** Applicable to ordinary conditions in Japan JIS B8616 or equivalent conditions, such as standard rating conditions, maximum operating conditions, low temperature conditions, etc.

**Limit:** Applicable to transitional brief periods, such as start-up and beginning of defrost mode.

No.	Item	Standard	Limit	Note
1	Refrigerant	R22(Meet the standard of Japan JIS K1517)		
2	Evaporating Temp.	-15~+12°C/[5~54 ° F] 0.20~0.62MPa(G)/[29~90psig]	-25~+15°C/[-13~59 ° F] 0.10~0.69MPa(G)/[14.5~100psig]	Comp. Suction Pressure
3	Condensing Temp.	+30~+65°C/[86~149 ° F] 1.09~2.60MPa(G)/[158~377psig]	+68°C/[155 ° F] 2.78MPa(G)/[403psig]	Comp. Discharge Pressure
4	Compression Ratio	2 ~ 6	10	
5	Winding Temp.	115°C/[240 °F] Max.	125°C/[257 °F]	
6	Shell Bottom Temp.	Upper Limit: 90 °C/[194 °F] Max.  Lower Limit: Evaporating Temp.+12K / [21 °F] Min.  Ambient Temp. +11K / [20 °F] Min.		When comp. Is running  When comp. shuts off
7	Discharge Gas Temp.	115°C/[240 °F] Max.	C-SB:130°C/[266°F] Max.  C-SC:135°C/[ 275°F] Max.	Within 100mm(4in) of the discharge fitting.  Inside of the well pipe on the top of comp.
8	Suction Gas Temp.	Superheat: 5K/[10 °F] Min.	No excessive noise	It should meet the requirement of item 5, 6, 7 and 14 within 300mm of the suction fitting.
9	Running Voltage	Within ±10% of the rated voltage		Voltage at comp. terminals.
10	Starting Voltage	Three Phase Models: 85% of the rated voltage min.  Single Phase Models: 90% of the rated voltage min.		Dropped voltage at comp. terminals.
11	On/Off Period	ON Period: Until the oil level returns to the center of the lower bearing  OFF Period: Until balance of high and low pressure is obtained		For at least 7 minutes -ON/3 minutes-OFF is recommendable.
12	Refrigerant Charge	Oil/Refrigerant(wt.)>0.35		Specific gravity of the Oil: 0.92.
13	Life Time	200,000 cycle		
14	Minimum Oil Level	C-SB: Center of the lower bearing  C-SC:No less than 70% of the initial oil charge		
15	Abnormal Pressure Rise/Drop	Pressure Rise: 3.0MPa(G) /[435psig] Max.  Pressure Drop: 0.03MPa(G) / [4.35psig] Min.		By high pressure switch  By low pressure switch
16	System Moisture Level	200ppm Max.		
17	System Uncondensable Gas Level	1 Vol.% Max.  Residual Oxygen 0.1 Vol.% Max.		24 hrs. after vacuuming: 1.01kPa Max.
18	Tilt	5° Deg.Max.		

Operation beyond the above limits must be approved by Dalian SANYO Compressor Co., Ltd.

(G): Gauge Pressure

### Notes

- 1 Installation should be completed within 15 minutes after removing the rubber plugs.
- 2 Do not use the compressor to compress air.
- 3 Do not energize the compressor under vacuumed conditon.
- 4 Evacuation and Refrigerant charge: Evacuate internal section in the refrigeration system from high and low pressure sides and charge liquid refrigerant from condenser outlet side. Additional charge shall be done with gas condition from low side.
- 5 Do not tilt over the compressor while carrying it.
- 6 Do not remove the paint.
- 7 Crankcase heater is required when the oil sump temperature is too low to meet the requirement of item 6 .
- 8 Voltage fluctuation between compressor terminals, during operation, shall be within 2% of the rated voltage.
- 9 Do not operate compressor in reverse rotational direction.
- 10 Suction strainers are recommended for all applications.

11 Copper Piping Stress	Start/Shutdown	34.32 N/mm <sup>2</sup> Max.
	Run	12.26 N/mm <sup>2</sup> Max.

## APPLICATION STANDARD & LIMIT (R407C)

The following requirements apply to Vertical type Hermetic Scroll Compressors:

**Standard:** Applicable to ordinary conditions in Japan JIS B8616 or equivalent conditions, such as standard rating conditions, maximum operating conditions, low temperature conditions, etc.

**Limit:** Applicable to transitional brief periods, such as start-up and beginning of defrost mode.

No.	Item	Standard	Limit	Note
1	Refrigerant	R407C		
2	Evaporating Temp.	-15~+12°C/[5~54 ° F] 0.20~0.65MPa(G)/[29~94psig]	-25~+15°C/[-13~59 ° F] 0.07~0.73MPa(G)/[(10~106psig]	Average temp. of evaporator Inlet and outlet.
3	Condensing Temp.	+30~+60°C/[86~140 ° F] 1.17~2.56MPa(G)/[170~371psig]	+65°C/[149 ° F] 2.88MPa(G)/[418psig]	Average temp. of condenser Inlet and outlet.
4	Compression Ratio	2 ~ 6	10	
5	Winding Temp.	115°C/[240 ° F] Max.	125°C/[257 ° F]	
6	Shell Bottom Temp.	Upper Limit: 90 °C/[194 °F] Max. Lower Limit: Evaporating Temp.+12K / [21 °F] Min. Ambient Temp. +11K / [20 °F] Min.		When comp. Is running When comp. shuts off
7	Discharge Gas Temp.	115°C/[240 °F] Max.	C-SB:130°C/[266°F] Max. C-SC:135°C/[ 275°F] Max.	Within 100mm(4in) of the discharge fitting. Inside of the well pipe on the top of comp.
8	Suction Gas Temp.	Superheat: 5K/[10 °F] Min.	No excessive noise	It should meet the requirement of item 5, 6, 7 and 14 within 300mm of the suction fitting.
9	Running Voltage	Within ±10% of the rated voltage		Voltage at comp. terminals.
10	Starting Voltage	Three Phase Models: 85% of the rated voltage min. Single Phase Models: 90% of the rated voltage min.		Dropped voltage at comp. terminals.
11	On/Off Period	ON Period: Until the oil level returns to the center of the lower bearing OFF Period: Until balance of high and low pressure is obtained		For at least 7 minutes -ON/3 minutes-OFF is recommendable.
12	Refrigerant Charge	Oil/Refrigerant(wt.)>0.35		Specific gravity of the Oil: 0.94.
13	Life Time	200,000 cycle		
14	Minimum Oil Level	C-SB: Center of the lower bearing C-SC:No less than 70% of the initial oil charge		
15	Abnormal Pressure Rise/Drop	Pressure Rise: 3.20MPa(G) /[464psig] Max. Pressure Drop: 0.05MPa(G)/[7.3psig] Min.		By high pressure switch By low pressure switch
16	System Moisture Level	200ppm Max.		
17	System Uncondensable Gas Level	1 Vol.% Max. Residual Oxygen 0.1 Vol.% Max.		24 hrs. after vacuuming: 1.01kPa Max.
18	Tilt	5° Deg.Max.		

Operation beyond the above limits must be approved by Dalian SANYO Compressor Co., Ltd.

(G): Gauge Pressure

### Notes

- 1 Installation should be completed within 15 minutes after removing the rubber plugs.
- 2 Do not use the compressor to compress air.
- 3 Do not energize the compressor under vacuume conditon.
- 4 Evacuation and Refrigerant charge: Evacuate internal section in the refrigeration system from high and low pressure sides and charge liquid refrigerant from condenser outlet side. Additional charge shall be done with gas condition from low side.
- 5 Do not tilt over the compressor while carrying it.
- 6 Do not remove the paint.
- 7 Crankcase heater is required when the oil sump temperature is too low to meet the requirement of item 6 .
- 8 Voltage fluctuation between compressor terminals, during operation, shall be within 2% of the rated voltage.
- 9 Do not operate compressor in reverse rotational direction.
- 10 Suction strainers are recommended for all applications.

11 Copper Piping Stress	Start/Shutdown	34.32 N/mm <sup>2</sup> Max.
	Run	12.26 N/mm <sup>2</sup> Max.

## APPLICATION STANDARD & LIMIT (R410A)

The following requirements apply to Vertical type Hermetic Scroll Compressors:

**Standard:** Applicable to ordinary conditions in Japan JIS B8616 or equivalent conditions, such as standard rating conditions, maximum operating conditions, low temperature conditions, etc.

**Limit:** Applicable to transitional brief periods, such as start-up and beginning of defrost mode.

No.	Item	Standard	Limit	Note
1	Refrigerant	R410A		
2	Evaporating Temp.	-15~+12°C/[5~54 ° F] 0.38~1.05MPa(G)/[55~152psig]	-25~+15°C/[-13~59 ° F] 0.23~1.15MPa(G)/[33~167psig]	Comp. Suction Pressure
3	Condensing Temp.	+30~+60°C/[86~140 ° F] 1.78~3.75MPa(G)/[258~544psig]	+65°C/[149 ° F] 4.18MPa(G)/[606psig]	Comp. Discharge Pressure
4	Compression Ratio	2 ~ 6	8	
5	Winding Temp.	115°C/[240 ° F] Max.	125°C/[257 ° F]	
6	Shell Bottom Temp.	Upper Limit: 90 °C/[194 °F] Max.		
		Lower Limit: Evaporating Temp.+12K / [21 °F] Min.		When comp. Is running
		Ambient Temp. +11K / [20 °F] Min.		When comp. shuts off
7	Discharge Gas Temp.	115°C/[240 °F] Max.	C-SB:130°C/[266°F] Max.	Within 100mm(4in) of the discharge fitting.
			C-SC:135°C/[ 275°F] Max.	Inside of the well pipe on the top of comp.
8	Suction Gas Temp.	Superheat: 5K/[10 °F] Min.	No excessive noise	It should meet the requirement of item 5, 6, 7 and 14 within 300mm of the suction fitting.
9	Running Voltage	Within ±10% of the rated voltage		Voltage at comp. terminals.
10	Starting Voltage	Three Phase Models: 85% of the rated voltage min.		Dropped voltage at comp. terminals.
		Single Phase Models: 90% of the rated voltage min.		
11	On/Off Period	ON Period: Until the oil level returns to the center of the lower bearing OFF Period: Until balance of high and low pressure is obtained		For at least 7 minutes -ON/3 minutes-OFF is recommendable.
12	Refrigerant Charge	Oil/Refrigerant(wt.)>0.35		Specific gravity of the Oil: 0.94.
13	Life Time	200,000 cycle		
14	Minimum Oil Level	C-SB: Center of the lower bearing	C-SB:Bottom of the lower bearing	
		C-SC:No less than 70% of the initial oil charge		
15	Abnormal Pressure Rise/Drop	Pressure Rise: 4.15MPa(G)/[602psig] Max.		By high pressure switch
		Pressure Drop: 0.15MPa(G) /[22psig] Min.		By low pressure switch
16	System Moisture Level	200ppm Max.		
17	System Uncondensable Gas Level	1 Vol.% Max. Residual Oxygen 0.1 Vol.% Max.		24 hrs. after vacuuming: 1.01kPa Max.
18	Tilt	5° Deg.Max.		

Operation beyond the above limits must be approved by Dalian SANYO Compressor Co., Ltd.

(G): Gauge Pressure

## Notes

- 1 Installation should be completed within 15 minutes after removing the rubber plugs.
  - 2 Do not use the compressor to compress air.
  - 3 Do not energize the compressor under vacuumed conditon.
  - 4 Evacuation and Refrigerant charge: Evacuate internal section in the refrigeration system from high and low pressure sides and charge liquid refrigerant from condenser outlet side. Additional charge shall be done with gas condition from low side.
  - 5 Do not tilt over the compressor while carrying it.
  - 6 Do not remove the paint.
  - 7 Crankcase heater is required when the oil sump temperature is too low to meet the requirement of item 6 .
  - 8 Voltage fluctuation between compressor terminals, during operation, shall be within 2% of the rated voltage.
  - 9 Do not operate compressor in reverse rotational direction.
  - 10 Suction strainers are recommended for all applications.
  - 11 Copper Piping Stress Start/Shutdown 34.32 N/mm<sup>2</sup> Max

11 Copper Piping Stress	Start/Shutdown	34.32 N/mm	Max.
	Run	12.26 N/mm <sup>2</sup>	Max.

## APPLICATION STANDARD & LIMIT (R134a)

The following requirements apply to Vertical type Hermetic Scroll Compressors:

**Standard:** Applicable to ordinary conditions in Japan JIS B8616 or equivalent conditions, such as standard rating conditions, maximum operating conditions, low temperature conditions, etc.

**Limit:** Applicable to transitional brief periods, such as start-up and beginning of defrost mode.

No.	Item	Standard	Limit	Note
1	Refrigerant	R134a		
2	Evaporating Temp.	-12~+12°C/[10~54 ° F] 0.09~0.34MPa(G)/[13~49psig]	-15~+15°C/[5~59 ° F] 0.06~0.39MPa(G)/[9~57psig]	Comp. Suction Pressure
3	Condensing Temp.	+30~+70°C/[86~158 ° F] 0.67~2.02MPa(G)/[97~293psig]	+75°C/[167 ° F] 2.26MPa(G)/[329psig]	Comp. Discharge Pressure
4	Compression Ratio	2 ~ 6	10	
5	Winding Temp.	115°C/[240 ° F] Max.	125°C/[257 ° F]	
6	Shell Bottom Temp.	Upper Limit: 90 °C/[194 °F] Max. Lower Limit: Evaporating Temp.+12K / [21 °F] Min. Ambient Temp. +11K / [20 °F] Min.		When comp. Is running When comp. shuts off
7	Discharge Gas Temp.	115°C/[240 °F] Max.	C-SB:130°C/[266°F] Max. C-SC:135°C/[ 275°F] Max.	Within 100mm(4in) of the discharge fitting. Inside of the well pipe on the top of comp.
8	Suction Gas Temp.	Superheat: 5K/[10 °F] Min.	No excessive noise	It should meet the requirement of item 5, 6, 7 and 14 within 300mm of the suction fitting.
9	Running Voltage	Within ±10% of the rated voltage		Voltage at comp. terminals.
10	Starting Voltage	Three Phase Models: 85% of the rated voltage min. Single Phase Models: 90% of the rated voltage min.		Dropped voltage at comp. terminals.
11	On/Off Period	ON Period: Until the oil level returns to the center of the lower bearing OFF Period: Until balance of high and low pressure is obtained		For at least 7 minutes -ON/3 minutes-OFF is recommendable.
12	Refrigerant Charge	Oil/Refrigerant(wt.)>0.35		Specific gravity of the Oil: 0.94.
13	Life Time	200,000 cycle		
14	Minimum Oil Level	C-SB: Center of the lower bearing C-SC:No less than 70% of the initial oil charge		
15	Abnormal Pressure Rise/Drop	Pressure Rise: 2.40MPa(G) /[348psig] Max. Pressure Drop: 0.03MPa(G)/[4.35psig] Min.		By high pressure switch By low pressure switch
16	System Moisture Level	200ppm Max.		
17	System Uncondensable Gas Level	1 Vol.% Max. Residual Oxygen 0.1 Vol.% Max.		24 hrs. after vacuuming: 1.01kPa Max.
18	Tilt	5° Deg.Max.		

Operation beyond the above limits must be approved by Dalian SANYO Compressor Co., Ltd.

(G): Gauge Pressure

### Notes

- 1 Installation should be completed within 15 minutes after removing the rubber plugs.
- 2 Do not use the compressor to compress air.
- 3 Do not energize the compressor under vacuume conditon.
- 4 Evacuation and Refrigerant charge: Evacuate internal section in the refrigeration system from high and low pressure sides and charge liquid refrigerant from condenser outlet side. Additional charge shall be done with gas condition from low side.
- 5 Do not tilt over the compressor while carrying it.
- 6 Do not remove the paint.
- 7 Crankcase heater is required when the oil sump temperature is too low to meet the requirement of item 6 .
- 8 Voltage fluctuation between compressor terminals, during operation, shall be within 2% of the rated voltage.
- 9 Do not operate compressor in reverse rotational direction.
- 10 Suction strainers are recommended for all applications.

11 Copper Piping Stress	Start/Shutdown	34.32 N/mm <sup>2</sup> Max.
	Run	12.26 N/mm <sup>2</sup> Max.